

TELECOMS · MOBILE OPERATORS · TOWER COMPANIES · FIBRE CARRIERS

BATTERY STORAGE FOR Telecoms.

An exchange buys power in every half-hour of the year and cannot drop a call when the supply fails. AMPROTEQ runs the middle of the day on the roof and the peaks on the battery, takes the load in under ten milliseconds when the grid goes, and leaves the standby set for the long outages.

THE SYSTEM

APEX A1000
PULSE P500
HELIOS H250
Solaris™ EMS

7.39 R/kWh

HIGH-SEASON PEAK
Miniflex < 500 V, 2026/27, ex VAT

≤ 10 ms

PULSE TRANSFER
Inside the 20 ms ride-through window

2.7 hours

ON THE BATTERY, WHEN FULL
At a 344 kW core exchange

280 kWp

SOLAR ON ROOF AND CARPORT
Onto the battery through HELIOS

CHEMISTRY

Liquid-cooled LFP · ≥ 88 % RTE

ENCLOSURE

10 ft · IP54 · -25 ... +60 °C

OUTPUT

400 V 3P4W · 4 × 125 kW PCS

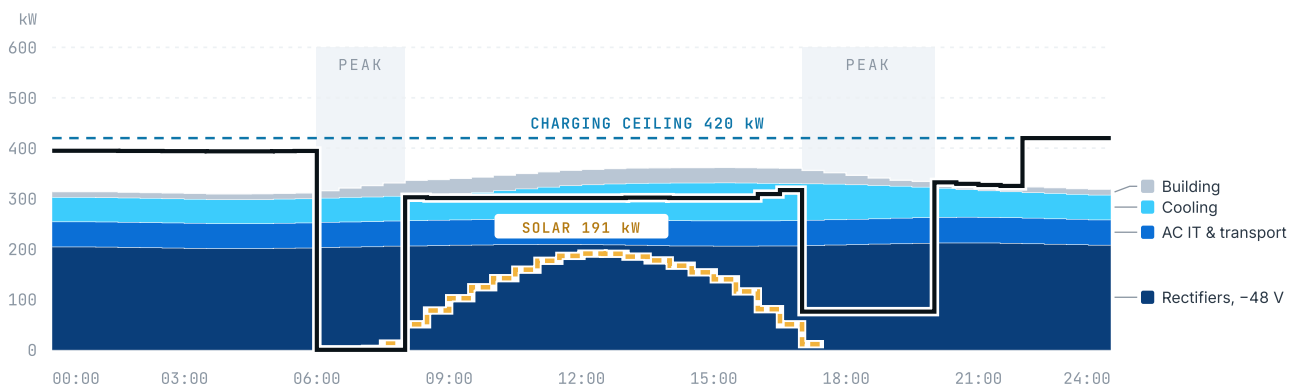
02 • WHERE THE MONEY IS

A load that never sleeps, priced by the half-hour.

An exchange draws almost as much at 03:00 as at 18:00, so it buys a full share of its energy in Eskom's peak windows. The roof covers the middle of the day; the A1000 carries the peaks.

FIG 02-1 • AVERAGE HIGH-SEASON WEEKDAY, CORE EXCHANGE AND SWITCHING CENTRE

MODELLED • KW



The black line is grid draw with an A1000 behind a PULSE P500 and 280 kWp of roof and carport solar (amber, dashed): close to zero in the morning peak, cut by three quarters in the evening one, and held under a 420 kW ceiling while the sun and the grid refill the battery between the peaks.

MINIFLEX 2026/27 • < 500 V

C/KWH EX VAT

High-season peak		739 c
High-season standard		185 c
Off-peak, all year		123 c
Low-season peak		307 c
Low-season standard		172 c

Active energy, transmission zone 0. A kilowatt-hour bought off-peak and spent in a winter peak saves about five times what it cost, after losses.

WHICH SITES SUIT THE A1000

OUR VIEW

SITE	DRAWS	FIT
Macro tower	2 – 8 kW, 48 V DC	Keeps its own batteries
Hub site • fibre POP	100 – 200 kW	Resilience first
Regional exchange	200 – 300 kW	Peaks and backup
Core exchange • MSC	300 – 500 kW	Full value
Data centre	1 MW and up	APEX + NEXUS, at MV

FIVE JOBS, ONE BATTERY

SOLARIS RUNS THEM AGAINST ONE STATE OF CHARGE

 01 Solar on the roof Roof and carport PV lands on the battery's DC bus through HELIOS and carries the middle of the day.	 02 Peak shifting Carries both weekday peak windows on energy from the sun, the night and the standard hours.	 03 Ride-through PULSE moves the 400 V board to the battery in ≤ 10 ms. Rectifiers and cooling carry on.	 04 Outage bridge Up to 2.7 hours on the battery, longer in daylight, before the set is needed.	 05 Fewer set starts Most interruptions end before the battery runs down, so the set stays cold.
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WHAT IT DOES FOR THE MODELLED EXCHANGE

FROM THE TELECOMS CASE STUDY

1.88 Rm GROSS SAVING, YEAR ONE One core exchange, FY2027/28	26 % OFF THE BILL Solar and battery together	17 of 24 OUTAGES, NO SET START A modelled year of faults	<6 years SIMPLE PAYBACK On an indicative turnkey cost
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03 · THE SYSTEM

Ahead of the rectifiers, never instead of them.

03

The –48 V plant and its strings stay exactly as they are. PULSE and the A1000 work on the AC side with the roof on HELIOS, on the bill every day and in front of the set when the grid goes.

BATTERY · APEX

A1000

Battery, PCS, cooling and fire protection in one 10 ft container, tested before dispatch.

ENERGY	1 044 kWh · 2.09 h
POWER	500 kW · 400 V 3P4W
ENCLOSURE	10 ft · IP54
CLIMATE	–25 ... +60 °C

TRANSFER · PULSE

P500

A static switch between the supply and the site: grid and set ahead, battery and load behind.

RATED	500 kW · 722 A
TRANSFER	≤ 10 ms, thyristor
PORTS	Load · PCS · 2 × PV
RETURN	Closes back in phase

CONTROL · SOLARIS™

EMS

Plans the battery around the tariff and the outage schedule, and keeps a reserve for faults.

JOBS	Peak · reserve · PF
SET	Last resort, by rule
PROTOCOLS	IEC 104 · Modbus
FLEET	Solaris Cloud · NOC

SOLAR · HELIOS

H250

Roof and carport PV straight onto the A1000's DC bus, in one conversion. Sold only with the battery.

POWER	250 kW DC bus
CHANNELS	5 × 50 kW MPPT
BATTERY	600 – 950 V port
ENCLOSURE	IP21 · IP55

FIG 03-1 · THE EXCHANGE, AS CONNECTED

SINGLE-LINE · SIMPLIFIED

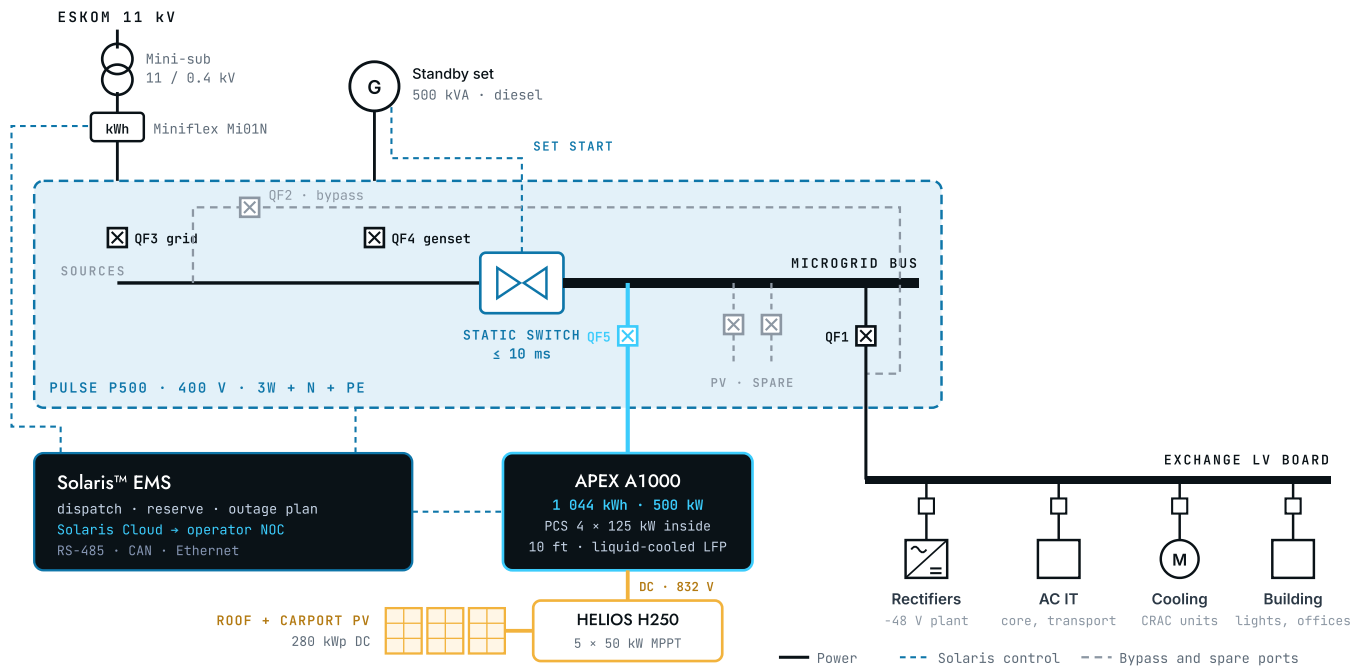
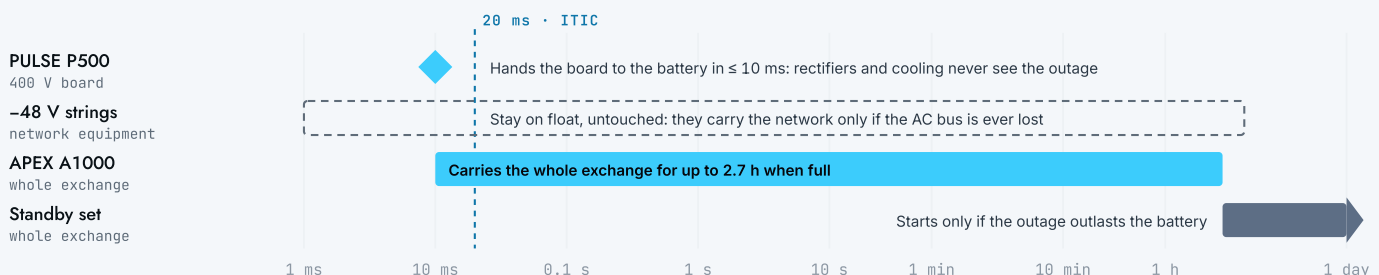


FIG 03-2 · FOUR LAYERS OF SUPPLY, BY HOW LONG EACH ONE CARRIES THE EXCHANGE

LOG SCALE



04 · THE RETURN

An asset that pays for itself in less than six years.



<6 years

SIMPLE PAYBACK

one core exchange, indicative turnkey cost

27 %

PROJECT IRR, 15 YEARS

battery, switch and solar, after O&M

5.4 ×

THE INVESTMENT, RETURNED

net cash over the term

Across a sixteen-site roll-out: payback in less than six years, a 24 % IRR and 4.7× returned. Diesel saved is on top.

THREE WAYS TO BUY

Purchase **Most operators**

Turnkey supply, install and commissioning, site by site. You own the plant; we run it under a 15-year O&M and availability agreement.

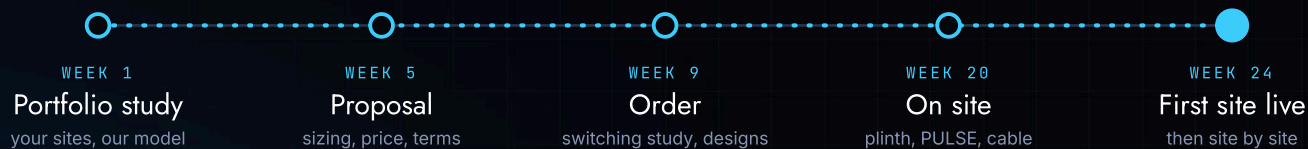
Service agreement

We own and run the plant for a fixed monthly fee per site, for operators who keep storage off the balance sheet.

Phased roll-out

Start with the sites that pay back first, on one design standard, and add sites as the programme proves itself.

PORTFOLIO STUDY TO THE FIRST SITE IN 24 WEEKS



YOUR NEXT STEP

A free portfolio study, in five working days.

Send a year of half-hour data for your twenty highest-draw sites, with tariffs, NMDs, standby sets and roof plans. You get the sites that pay first, the bill before and after, and the payback.

info@amproteq.energy

+27 82 552 6696

AMPROTEQ.ENERGY